

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (currently amended) A process of laser capture microdissection of at least a portion from a specimen having the steps of:

providing a selectively activatable layer which upon activation becomes adhesive to a portion of the specimen and causes volumetric expansion with an extremity of the activatable layer with volumetric expansion exceeding a first interval taken normal to a surface of the selectively activatable layer, ~~the extremity becoming adhesive to a portion of the specimen upon selective activation;~~

placing the selectively activatable layer overlying the specimen at a finite separation less than the first interval without contacting the specimen;

selectively activating the selectively activatable layer to cause volumetric expansion at least to the first interval to locally contact a portion of the specimen at the extremity of the volumetric expansion and become adhesive to the portion of the specimen; and,

separating the selectively activatable layer from the specimen to ~~micro dissect~~ microdissect the contacted portion of the specimen from the remainder of the specimen after selective activation.

2. (previously amended) The process of laser capture microdissection from a specimen according to claim 1 having the steps of:

providing a supporting substrate; and,

adhering the selectively activatable layer to the supporting substrate.

3. (currently amended) The process of laser capture microdissection from a specimen according to claim 1 having the steps of:

before the selectively activating step, visualizing the portion of the specimen to locate the portion of the specimen for microdissection; and,

activating the selectively activatable layer overlying the visualized portion of the specimen.

4. (previously amended) The process of laser capture microdissection from a specimen according to claim 1 where the selectively activating step forms a mechanical bond with the specimen.

5. (currently amended) The process of laser capture microdissection from a specimen according to claim 1 having the steps of:

the step of providing a selectively activatable layer includes the step of placing a coating on one side of the selectively activatable layer, the coating having an affinity specific bond with the specimen, wherein upon activation, the coated selectively activatable layer can be contacted to the specimen to form affinity specific bonds with the at least one partportion of the specimen;

exposing the selectively activatable layer at the coating to the specimen; and,
the selectively activating step includes activating the selectively activatable layer to cause the coating having the affinity specific bond to contact the specimen and form affinity specific bond with the at least one partportion of the specimen on the activatable layer.

6. (previously amended) The process of laser capture microdissection from a specimen according to claim 1 having the steps of:

repeating the placing, selectively activating, and separating steps at different portions of the specimen with different parts of the selectively activatable layer to capture a series of portions of the specimen on the selectively activatable layer.

7. (currently amended) The process of laser capture microdissection from a specimen according to claim 6 having the steps of:

moving the selectively activatable layer with respect to the specimen to ~~micro dissect~~microdissect and concentrate the series of portions of the specimen on the selectively activatable layer ~~relative to the series of portions spacing within the specimen.~~

8. (currently amended) A process of attachment of a selectively activatable layer to a portion of a specimen having the steps of:

providing a selectively activatable layer which upon laser activation causes heat generated volumetric expansion of an extremity to a first interval taken normal to the surface of the selectively activatable layer and upon cooling elastically contracts the extremity towards the activatable layer, the extremity of the volumetric expansion ~~having becoming~~ adhesive properties with respect to a ~~portion of the~~ specimen during and after activation;

placing the selectively activatable layer overlying the specimen at a portion for ~~micro-dissection~~ microdissection at a separation less than the first interval without contacting the specimen; and,

selectively activating with laser energy to heat the selectively activatable layer to cause heat generated volumetric expansion of the extremity to a first interval taken normal to the surface of the selectively activatable layer to contact the portion of the specimen and adhere to the portion of the specimen;

ceasing the laser activation; and,

allowing the heated ~~the~~ selectively activatable layer to cool and elastically contract the extremity towards the activatable layer while maintaining adherence to the portion of the specimen.

9. (currently amended) The process of attachment of a selectively activatable layer to a portion of a specimen according to claim 8 having the steps of:

allowing the heated selectively activatable layer to cool and elastically contract the extremity towards the activatable layer while maintaining adherence to the portion of the specimen to thereby ~~micro-dissect~~ microdissect the portion of the specimen from a remainder of the specimen.

10. (currently amended) The process of attachment of a selectively activatable layer to a portion of a specimen according to claim 8 having the steps of:

contracting the volumetric expansion by cooling while maintaining attachment to the portion of the specimen to elastically tension the volumetric expansion of the activatable layer; and,

withdrawing the activatable layer from the specimen to separate and thus ~~micro~~
~~dissect~~microdissect the portion of the specimen from the remainder of the specimen.

11. (previously amended) The process of attachment of a selectively activatable layer to a portion of a specimen according to claim 8 having the steps of:

contracting the volumetric expansion at the extremity to withdraw the portion of the specimen bonded to the volumetric expansion within the first interval whereby the portion of the specimen bonded to the extremity of the volumetric expansion cannot contact underlying and remaining portions of the specimen.

12. (currently amended) The process of attachment of a selectively activatable layer to a portion of a specimen according to claim 8 ~~having~~wherein the ~~steps~~step of selectively activating the activatable layer includes:

providing activatable layer with a ~~volume change associated with phase transition~~
wherein the activatable layer is provided with a volume change.

13. (previously amended) The process of attachment of a selectively activatable layer to a portion of a specimen according to claim 8 having the steps of:

attaching the activatable layer to a supporting substrate.

14. (currently amended) A process of laser capture microdissection from a specimen having the steps of:

providing a selectively activatable layer which upon activation by laser causes volumetric expansion upon heating ~~and adhesion~~beyond a first interval and becomes adhesive with respect to a specimen;

placing the selectively activatable layer overlying the specimen at a separation less than a first interval without contacting the specimen;

heating and expanding the selectively activatable layer to cause volumetric expansion first by locally heating and expanding a first inner volume of the selectively activatable layer with a component of expansion normal to the selectively activatable layer to cause an extremity of expansion away from the activatable layer;

heating and expanding a surrounding second volume of the selectively activatable layer with a component of expansion in a plane of the selectively activatable layer into the first volume whereby a total volumetric expansion occurs with the second volume expanding into and extruding the first volume at the extremity for a total expansion at least to the first interval to locally contact a portion of the specimen with the extremity of the volumetric expansion and adhere to the portion of the specimen; and,

removing the extremity of the volumetric expansion with the portion of the specimen attached to ~~micro-dissect~~microdissect the portion from the sample.

15. (previously amended) The process of laser capture microdissection from a specimen according to claim 14 having the steps of:

generating a vapor bubble in the first volume during heating and expanding of the first volume whereby the vapor bubble contributes to the volumetric expansion of the first volume.